

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

**WSOU INVESTMENTS, LLC D/B/A
BRAZOS LICENSING AND
DEVELOPMENT,**

Plaintiff,

v.

**HUAWEI TECHNOLOGIES USA
INC.; HUAWEI TECHNOLOGIES
CO., LTD.,**

Defendants.

§ **CIVIL ACTION 6:20-cv-00533-ADA**
§ **CIVIL ACTION 6:20-cv-00535-ADA**
§ **CIVIL ACTION 6:20-cv-00540-ADA**
§ **CIVIL ACTION 6:20-cv-00543-ADA**
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PLAINTIFF'S OPENING CLAIM CONSTRUCTION BRIEF

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Plaintiff WSOU Investments, LLC d/b/a Brazos License and Development (“WSOU”) respectfully submits this claim construction brief in support of its proposed constructions.

I. U.S. Patent No. 6,882,627 (Case No. 6:20-cv-00533) Claim Terms

A. Overview of the ’627 Patent

The ’627 patent is generally directed to techniques for facilitating the selection of multiple paths through a network represented by a network topology which takes into account shared risk which may exist between network resources. ’627 patent, Abstract, 2:5-9. The ’627 patent summarizes certain technical problems in the field that existed at the time, over two decades ago. *Id.*, 1:13-2:2. At the time of the invention, an approach to providing failure tolerance in networks was to identify during initial service configuration a primary path and one or more non-primary paths through the network, so called “multi-path routing,” and such that the two or more paths to be maximally edge disjoint and maximally node disjoint (meaning the paths share as few links and nodes as possible, usually none of either). *Id.* 1:43-57. However, some links and/or nodes in a network may share a common risk of failure. For example, there may be multiple links which at some point share a common resource such as a common single cable. *Id.*, 1:58-2:2. Existing route definition methods at the time, such as maximally disjoint approaches, do not address the issue of shared risk groups, resulting in the possibility that the primary and non-primary paths will share some resources even though they do not share any links and/or nodes. *Id.*

In a preferred embodiment, the ’627 patent solves certain network-related problems of its time through a novel use of determining shared risk groups and performing a shared risk group (SRG) topology transformation of the network into a virtual topology which discourages the use of network resources in any shared risk group determined to be a part of a first path through the network, and then identifying a second path through the virtual topology. *Id.*, 2:10-27. The SRG topology transformation for each node requiring such transformation preferably involves

transforming a node into two interconnected nodes, providing a forward unidirectional link between two interconnected nodes and assigning the forward unidirectional link a cost, transforming any bi-directional link into the node requiring transformation into a first unidirectional link into one of the two interconnected nodes and a second unidirectional link out of the other of the two interconnected nodes where, preferably, the cost assigned to each forward unidirectional link is greater than the sum of costs for all links in the network topology. *Id.*, 2:31-54. The SRG topology transformation for each link requiring transformation preferably involves transforming the link requiring transformation into a forward unidirectional link and a reverse unidirectional link each having a respective cost. For each unidirectional link, preferably, a respective cost is assigned which is larger than a sum of the costs assigned to all links in the topology. Preferably, a larger cost is assigned to transformed links which form part of the first path than for transformed unidirectional links which do not form part of the first path. *Id.*

In another embodiment of the invention, in the event at least two paths cannot be found which do not share at least one resource having shared risks, revising the at least one shared risk group to be less restrictive and then re-executes the method. This may be done for example by defining a hierarchy of resources, the hierarchy having a plurality of levels, with resources assigned to a given level in the hierarchy being contained by a resource assigned to a higher level in the hierarchy, wherein a shared risk between any two resources in a lower level of the hierarchy is also considered a shared risk between any pair of resources in a higher level of the hierarchy which contain the two resources in the lower level of the hierarchy. A first attempt is made to define first and second paths which do not share any risk at the highest level of the hierarchy of resources. Upon failure of the first attempt, at least one subsequent attempt is made to define first and second paths which do not share any risk at a level of the hierarchy of resources below the highest level

of the hierarchy of resources. Subsequent attempts are made for respective lower levels of the hierarchy of resources until first and second paths are identified which do not share risk at the respective lower level. *Id.*, 2:63-3:18.

B. Terms with Constructions Not Contested by Defendants

Term	Construction not contested by Defendants
“means for maintaining or obtaining network topology information” (Claim 30)	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: maintaining or obtaining network topology information</p> <p>Structure: network management platform, and equivalents thereof; <i>see e.g.</i>, 5:64-6:22</p>
<p>first code means for identifying a first path through the network topology [from a source node to a destination node], the first path comprising a first sequence of network resources” (Claim 29) /</p> <p>“means for identifying a first path through the network topology [from a source node to a destination node], the first path comprising a first sequence of network resources” (Claim 30)</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: identifying a first path through the network topology from a source node to a destination node</p> <p>Structure: processing platform-readable medium, and equivalents thereof (claim 29) / a network management platform, and equivalents thereof (claim 30)</p> <p>Algorithm (if required): any suitable method of determining a path through network topology, and equivalents thereof, <i>see e.g.</i>, 6:38-48, Figs. 2, 3A</p>
<p>“fourth code means adapted to identify a second path through the virtual topology from the source node to the destination node” (Claim 29) /</p> <p>“means adapted to identify a second path through the virtual topology from the source node to the destination node” (Claim 30)</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: identify a second path through the virtual topology from the source node to the destination node</p> <p>Structure: processing platform-readable medium, and equivalents thereof</p> <p>Algorithm (if required): any suitable method of determining a path through network topology <i>see e.g.</i>, 4:51-5:39, 7:55-62, Fig. 3C, and equivalents thereof</p>

C. Terms with Disputed Constructions

1. **“performing a SRG (shared risk group) topology transformation of the network topology into a virtual topology that discourages the use of network resources” (Claims 1, 29, 30)**

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“performing a transformation of links and/or nodes of a SRG (shared risk group) of the network into a virtual topology that discourages the use of network resources”

This term should be given its plain and ordinary meaning. Defendants’ proposed construction should be rejected for improperly importing limitations not required in the claims or specification. *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1369 (Fed. Cir. 2012) (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”). Defendants’ proposed construction improperly seeks to limit the claims to “transformation of links and/or nodes.” While the specification discloses embodiments regarding transformation of nodes and transformation of links, the specification also first expressly states: “a network represented by **a network topology representing an interconnected set of network resources.**” ’627 patent, 2:11-13 (emphasis added). The specification also expressly states that: “[t]he network resources **might for example** include nodes and links. The shared risk groups **might** include groups of nodes and/or groups of links.” *Id.*, 2:28-30 (emphasis added). In other words, as the specification states, the network resources *could* include nodes and links, but is expressly *not limited to nodes and links*. Regardless, importing limitations from an embodiment is improper, even if it is the only embodiment. *Liebel–Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed.Cir.2004).

2. **“second code means adapted to, for at least one shared risk group, determine if any of the at least one shared risk group includes any of the first sequence of network resources” (Claim 29) /**

“means adapted to, for at least one shared risk group, determine if any of the at least one shared risk group includes any of the first

sequence of network resources” (Claim 30)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: determine if any of the at least one shared risk group includes any of the first sequence of network resources</p> <p>Structure: processing platform-readable medium, and equivalents thereof (claim 29) / a network management platform, and equivalents thereof (claim 30)</p> <p>Algorithm (if required): <i>see e.g.</i>, 2:13-54, 3:54-4:15, 4:45-5:33, 6:23-37, 6:52-7:52, 9:18-23, 12:46-50 Figs. 3A, 3B, 6B, and equivalents thereof</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Indefinite for failure to disclose sufficient structure</p>

But the parties agree that the terms are subject to 35 U.S.C. § 112, ¶ 6. The parties dispute whether the terms are indefinite. Defendants’ proposal should be rejected. First, Defendants’ proposed construction does not propose a recited function, and Defendants cannot reasonably argue that there is a failure to disclose sufficient structure without identifying a recited function.¹ *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). (“An error in identification of the function can improperly alter the identification of structure in the specification corresponding to that function.”). Nonetheless, **the correct recited function is “determine if any of the at least one shared risk group includes any of the first sequence of network resources.”** Second, the **correct corresponding structure is “processing platform-readable medium, and**

¹ Additionally, Defendants filed a petition for *inter partes* review against this same ’627 patent in IPR2021-00222 and against the same claims 29 and 30. In IPR2021-00222, Defendants proposed to the PTAB that these terms are not indefinite for failing to disclose structure, but instead, “includes the corresponding structure—algorithms for identifying shared risk groups of FIG. 3B and 6B—and equivalents thereof.” Ex. A, p. 16 (IPR2021-00222, Petition (Paper 2), at 16). Thus in at least IPR2021-00222, Defendants has demonstrated that this term is not indefinite. *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010) (“As a preliminary matter, we observe that a claim cannot be both indefinite and anticipated.”).

equivalents thereof” for Claim 29 and “a network management platform, and equivalents thereof” for Claim 30. Moreover, the Federal Circuit has held that functions like ‘processing,’ ‘receiving,’ and ‘storing’ do not require the disclosure of an algorithm. *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1315-16 (Fed.Cir. 2011). The same applies for “determin[ing]”. *See e.g. Farstone Technology, Inc. v. Apple Inc.*, 2015 Markman 857706, 2015 WL 857706, *7-*8 (C.D. Cal. 2015) (finding that the ‘Selecting’ is a common computer function and therefore requires no additional structure to be disclosed.); *see also Typhoon Touch Technologies, Inc. v. Dell, Inc.*, 659 F.3d 1376, 1384-86 (Fed. Cir. 2011) (holding that the determination whether a match exists to be sufficient textual description for a programmer of ordinary skill in the art as one of the steps in ‘means for cross-referencing,’ and that “the matching of entered responses with a library of possible responses” to be one of known computer-implemented operations and are “readily implemented by persons of skill in computer programming.”). However, to the extent an algorithm is required, the claim language itself provides all the algorithm that is required, however, further exemplary algorithms disclosed in the specification are recited at ’627 patent, 2:13-54, 3:54-4:15, 4:45-5:33, 6:23-37, 6:52-7:52, 9:18-23, 12:46-50 Figs. 3A, 3B, 6B, and equivalents thereof. For example, the specification teaches in an embodiment that once the shared risk groups are determined (*e.g.* ’627 patent, 6:23-37), each primary bi-directional link belonging to a shared risk group (SRG) under consideration is determined for transformation (*e.g.*, *Id.*, 6:63-66).

3. “third code means for performing a SRG (shared risk group) topology transformation of the network topology into a virtual topology which discourages the use of network resources” (Claim 29) /

“means for performing a SRG (shared risk group) topology transformation of the network topology into a virtual topology which discourages the use of network resources” (Claim 30)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Subject to 35 U.S.C. § 112, ¶6	Subject to 35 U.S.C. § 112, ¶6

<p>Function: performing a SRG (shared risk group) topology transformation of the network topology into a virtual topology which discourages the use of network resources</p> <p>Structure: processing platform-readable medium, and equivalents thereof (claim 29) / a network management platform, and equivalents thereof (claim 30)</p> <p>Algorithm (if required): <i>see e.g.</i>, 2:31-3:18, 6:49-7:52, 7:63-8:28, 8:30-9:35, Figs. 2, 3A-3D, 4A, 4B, 5A, 5B, 6A-6E, and equivalents thereof</p>	<p>Function: performing a SRG (shard risk group) topology transformation of the network topology into a virtual topology which discourages the use of network resources</p> <p>Structure: Algorithms for link and node transformations such as those described in Figures 3C, 3D, 4A, and 4B, and equivalents thereof.</p>
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The parties agree that the terms are subject to 35 U.S.C. § 112, ¶ 6. The parties also agree the recited function is “performing a SRG (shared risk group) topology transformation of the network topology into a virtual topology which discourages the use of network resources.” However, Defendants’ proposed structure is erroneous because Defendants’ proposed construction does not identify a structure; instead Defendants appear to identify an algorithm. The **correct corresponding structure is** “processing platform-readable medium, and equivalents thereof” for Claim 29 and “a network management platform, and equivalents thereof” for Claim 30. And to the extent an algorithm is required, exemplary algorithms disclosed in the specification are recited at ’627 patent, 2:31-3:18, 6:49-7:52, 7:63-8:28, 8:30-9:35, Figs. 2, 3A-3D, 4A, 4B, 5A, 5B, 6A-6E, and equivalents thereof. For example, the specification teaches exemplary link and node transformations:

“Link Transformation

A preferred method of performing link transformation will be described with reference to FIG. 4A. Each primary bi-directional intermediate link L 100 belonging to an SRG group under consideration is transformed into a link L’ 102. Similarly, each non-primary bi-directional intermediate link L 100 belonging to an SRG group under consideration is transformed into a link L’ 104. For non-primary path links, each link L’ 104 is assigned a cost of

$Lo+Ls$, where Lo =original link cost, $Ls=(Slinkcosts)*SRLG$, where $Slinkcosts$ is arbitrarily defined to be the sum of the costs of all of the links in the network. For primary path links, each link L' 102 is assigned a cost $Lo+Lp$, $Lp=(Slinkcosts)*SRLG+K$. Note, $Lp>Ls$ by an amount K , as using a primary link in an SRG is worse than using a non-primary in an SRG.

Node Transformation

A preferred method of performing node transformation will be described with reference to FIG. 4B. Each node N 120 to be transformed is split into two nodes N' 122, N'' 124. For a primary path node, a new unidirectional link $N' \rightarrow N''$ 126 is added, and for a non-primary path node, a new unidirectional link $N' \rightarrow N''$ 128, in both cases between the two new nodes 122, 124. The links 126, 128 have costs defined as follows: non-primary path node $N' \rightarrow N''$: $cost=C_s=(Slinkcosts)*SRNG$ primary path node $N' \rightarrow N''$: $cost=C_p=(Slinkcosts)*SRNG+J$ The primary path node has a higher cost by an amount J to discourage its use over the non-primary path node.” *Id.*, 6:62-7:23.

II. U.S. Patent No. 6,999,727 (Case No. 6:20-cv-00543) Disputed Claim Terms

A. Overview of the '727 Patent

The '727 patent is generally directed to implementing a Performance Monitoring function according to data retrieved through Forward Error Correction (FEC) in a telecommunications network and based on the correlation of information relating to “corrected” and “uncorrected” blocks deriving from the implementation of the FEC function. '727 patent, Abstract, 1:63-2:3. The '727 patent summarizes certain technical problems in the field that existed at the time, nearly two decades ago. At the time of the invention, Forward Error Correction mechanisms were known in the art as a methodology for correcting transmission errors, and there were substantially two types of FEC, in-band FEC and out-of-band FEC. *Id.*, 1:21-38. While the properties of FEC were well known in the art, it was also well known that there was a need for defining a procedure for Performance Monitoring, which consists of the evaluation of a path (link) quality based on an evaluation of the result of the FEC procedure. *Id.*, 1:42-45. The known procedures for Performance

monitoring based on FEC data at the time independently utilized two uncorrelated sets of primitive counters for corrected errors in respective information blocks and uncorrected blocks. *Id.*, 1:46-51. The problem with that approach was it did not deliver sufficient information about the real transmission quality of the path (link). For example, under conditions of bad transmission quality, the error counter does not provide reliable data, as it refers to information blocks which cannot be corrected through the FEC procedure. Furthermore, the evaluation of Bit Error Rate was not possible. *Id.*, 1:52-58.

In a preferred embodiment, a Performance Monitoring function is provided that results in better indication of the status of path (link) based on a Performance Monitoring function based upon the correlation of information regarding “corrected” and “uncorrected” information blocks derived from the FEC function. *See e.g., Id.*, 2:36-4:54.

B. Terms with Constructions Not Contested by Defendants

Term	Construction not contested by Defendants
“means for receiving blocks of data” (Claims 4, 5)	Subject to 35 U.S.C. § 112, ¶6 Function: receiving blocks of data Structure: telecommunication network management system, and equivalents thereof
“means for obtaining data through the Forward Error Correction function carried out on the blocks of received data” (Claims 4, 5)	Subject to 35 U.S.C. § 112, ¶6 Function: obtaining data through the Forward Error Correction function carried out on the blocks of received data Structure: network node performing Forward Error Correction function, and equivalents thereof

C. Terms with Disputed Constructions

4. “corrected errors” (Claims 1, 4-7)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
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Plain and ordinary meaning	“number of errors that have been corrected by the FEC mechanism in the time interval considered”
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This term should be given its plain and ordinary meaning. Defendants’ proposal to construe this term is confusing given Defendants’ proposal to also construe the following term: “a number of corrected errors (BCE) in a non-SCS base reference time period.” *See* Section II.C.5, below. Specifically, the term “corrected errors” only ever appears in any claim (asserted or otherwise) as “a number of corrected errors (BCE)...” in the ’727 patent, Defendants’ proposal to construe “corrected errors” *and* “a number of corrected errors (BCE)...” is especially unclear and confusing. *See* ’727 patent, 5:34-35 (Claim 1), 5:59 (Claim 3), 6:21-22 (Claim 4), 6:45-46 (Claim 5), 7:1-2 (Claim 6), 8:10-11 (Claim 7). In other words, it is inappropriate to separate the term “number of corrected errors (BCE)” to just “corrected errors” in a vacuum. Given the full context of the language of the claims, Defendants’ proposal for construction and proposed construction are confusing and unhelpful. Defendants’ proposed construction should be rejected. *Toshiba*, 681 F.3d 1369 (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”).

5. “a number of corrected errors (BCE) in a non-SCS base reference time period” (Claims 1, 4-7)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“the number of background corrected errors within a base reference time period which is different than the base reference time period used to calculate uncorrected blocks”

This term should be given its plain and ordinary meaning. The claim language here expressly provides the definition of the claim term. Specifically, the term itself recites that it is a number of corrected errors, that are in a non-SCS base reference time period. *See* ’727 patent, 5:34-35 (Claim 1), 6:21-22 (Claim 4), 6:45-46 (Claim 5), 7:1-2 (Claim 6), 8:10-11 (Claim 7). The claims also provide a definition of SCS time period as: “a defected base reference time period

(SCS) or a time period where at least an uncorrected block (UB) has been detected.” *See Id.*, 5:31-33 (Claim 1), 6:17-19 (Claim 4), 6:41-43 (Claim 5), 6:65-67 (Claim 6), 8:7-9 (Claim 7). Thus, the term is expressly defined by the claim language itself, and Defendants’ proposed construction at best attempts to re-write the claim language, which is unnecessary and unhelpful. *Toshiba*, 681 F.3d 1369 (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”). Moreover, Defendants’ proposed construction is improper for limiting the “base reference time period” to one that is “different than the base reference time period used to calculate uncorrected blocks.” The express language of the claims recites uncorrected blocks being “detected.” In addition to the claim language, the specification also provides the example of a “severely corrected second”² to include a time period “wherein at least one uncorrected block UB *has been detected*.” ’727 patent, 3:12-14 (emphasis added). Thus, Defendants’ proposed construction is erroneous for requiring a “calculation” instead of “detection.” Finally, to the extent a “non-SCS base reference time period” were to be re-phrased (and it should not), the specification provides a much clearer re-wording in an example of a “non SCS second,” which the specification provides as “namely, a [time period] at low frequency of errors, wherein the errors can be corrected.” *Id.*, 3:9-11.

6. “means for implementing a Performance Monitoring function based on data retrieved through a Forward Error Correction function” (Claims 4, 5)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Subject to 35 U.S.C. § 112, ¶6	Subject to 35 U.S.C. § 112, ¶6
Function: implementing a Performance Monitoring function based on data retrieved through a Forward Error Correction function	Function: implementing a Performance Monitoring function based on data retrieved through a Forward Error Correction function
Structure: telecommunication network	Structure: Algorithm disclosed in Figure 1, and

² The specification expressly recites that “[t]he time period of 1 second is to be considered in a non-limiting way as base reference for the application of the method according to the present invention.” ’727 patent, 2:62-65 (emphasis added).

management system, and equivalents thereof	equivalents thereof
Algorithm (if required): <i>see e.g.</i> , 1:63-2:21, 2:36-4:54, Fig. 1, and equivalents thereof	

The parties agree this term is subject to 35 U.S.C. § 112, ¶6. The parties also agree as to the recited function. However, Defendants’ proposed structure is erroneous because Defendants’ proposed construction does not identify a structure; instead Defendants appear to identify an algorithm. The **correct corresponding structure is** “telecommunication network management system, and equivalents thereof.” *See e.g.*, ’727 patent, 5:66-67 (Claim 4), 6:23-24 (Claim 5); *see also Id.*, 2:10-16. And to the extent an algorithm is required, exemplary algorithms disclosed in the specifications are recited at ’727 patent, 1:63-2:21, 2:36-4:54, Fig. 1, and equivalents thereof. For example, the specification teaches obtaining certain values from a FEC end function (such as CEC, UBC, and DS), based on those FEC values, determining certain other values (such as BCE and SCS), determining a summation of values of BCE and SCS events, and correlating the information regarding corrected blocks and uncorrected blocks. *See e.g.*, 2:36-4:54, Fig. 1.

7. “means for classifying said blocks either as corrected or uncorrected through the Forward Error Correction function” (Claims 4, 5)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Subject to 35 U.S.C. § 112, ¶6	Subject to 35 U.S.C. § 112, ¶6
Function: classifying said blocks either as corrected or uncorrected through the Forward Error Correction function	Indefinite for lack of structure.
Structure: network node performing Forward Error Correction function, and equivalents thereof	

The parties agree this term is subject to 35 U.S.C. § 112, ¶6. Defendants’ contention of indefinite for lack of structure is erroneous at least because Defendants fail to identify any function. *Micro Chem. Inc.*, 194 F.3d at 1258. (“An error in identification of the function can improperly

alter the identification of structure in the specification corresponding to that function.”). The **correct recited function** is “classifying said blocks either as corrected or uncorrected through the Forward Error Correction function.” And the **correct corresponding structure** is “network node performing Forward Error Correction function, and equivalents thereof.” *See e.g.*, ’727 patent, 2:45-65 (“[t]he following primitives can be obtained from a FEC end function, performed in the network node: [listing CEC, corrected errors; UBC, uncorrected blocks; DS: defect second]”).

8. “means for calculating the Performance Monitoring function by implementing a correlation of the information regarding said corrected and uncorrected blocks” (Claims 4, 5)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: calculating the Performance Monitoring function by implementing a correlation of the information regarding said corrected and uncorrected blocks</p> <p>Structure: telecommunication network management system, and equivalents thereof</p> <p>Algorithm (if required): <i>see e.g.</i>, 1:63-2:21, 2:36-4:54, Fig. 1, and equivalents thereof</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: calculating the Performance Monitoring Function by implementing a correlation of the information regarding said corrected and uncorrected blocks wherein said correlation of the information regarding said corrected and uncorrected blocks includes calculating information comprising: a defected base reference time period (SCS) or a time period where at least an uncorrected block (UB) has been detected and a number of corrected errors (BCE) in a non-SCS base reference time period.</p> <p>Structure: Algorithmic structure: $BER_{IN} = \Sigma BCE / (NSEC - \Sigma SCS)$, and equivalents thereof</p>

The parties agree this term is subject to 35 U.S.C. § 112, ¶6. However, Defendants fail to recite the correct recited function and structure. Defendants’ proposed function improperly includes extraneous elements from the claims’ wherein clauses. *See e.g.* ’727 patent, 6:14-19 (Claim 4), 6:38-46 (Claim 5). The Federal Circuit has emphasized that in performing the first step, “a court may not construe a means-plus-function limitation 'by adopting a function different from

that explicitly recited in the claim.” *JVW Enterprises, Inc. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1331 (Fed. Cir. 2005) *quoting Micro Chem.*, 194 F.3d at 1258. That is because “[a]n error in identification of the function can improperly alter the identification of structure in the specification corresponding to that function.” *Micro Chem.*, 194 F.3d at 1258. The **correct recited function is** “calculating the Performance Monitoring function by implementing a correlation of the information regarding said corrected and uncorrected blocks.” Further, Defendants’ proposed structure is erroneous because Defendants’ proposed construction does not identify a structure, instead Defendants appear to identify an algorithm. The **correct corresponding structure is** “telecommunication network management system, and equivalents thereof.” And to the extent an algorithm is required, exemplary algorithms disclosed in the specification are recited at ’727 patent, 1:63-2:21, 2:36-4:54, Fig. 1, and equivalents thereof. For example, the specification teaches obtaining certain values from a FEC end function (such as CEC, UBC, and DS), based on those FEC values, determining certain other values (such as BCE and SCS), determining a summation of values of BCE and SCS events, and correlating the information regarding corrected blocks and uncorrected blocks. *See e.g.*, 2:36-4:54, Fig. 1.

9. “implementing a Performance Monitoring function based on data retrieved through a Forward Error Correction Function” (Claims 6, 7)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: implementing a Performance Monitoring function based on data retrieved through a Forward Error Correction function</p> <p>Structure: Algorithm disclosed in Figure 1, and equivalents thereof.</p>

This term should be given its plain and ordinary meaning. Because this term does not

contain the words “means for,” there is a rebuttable presumption that section 112, paragraph 6, does not apply to that limitation. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc). That presumption can be overcome, but only “if the challenger demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Id.* at 1349. The question whether this term invokes section 112, paragraph 6, depends on whether persons skilled in the art would understand the claim language to refer to structure, assessed in light of the presumption that flows from the drafter’s choice not to employ the word “means.”” *Samsung Elecs. Am. v. Prisia Eng’g Corp.*, 948 F.3d 1342, 1354 (Fed. Cir. 2020); *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1019 (Fed. Cir. 2017) (“To determine whether a claim recites sufficient structure, “it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.””).

Here, the claim language refers to structure, given that the preamble of Claims 6 and 7 recite “a computer program having a program code... said computer program comprises:” (’727 patent, 6:47-49 (Claim 6)), and “a computer readable medium having recorded thereon a computer code...adapted to enable a computer to perform the steps comprising:” (7:3-5 (Claim 7)). The term “program code” of Claim 6 is not a nonce word and connects specific structure.³ See e.g., *Virginia Innovation Sciences, Inc. v. Amazon.com, Inc.*, 2019 Markman 4259020, 2019 WL 4259020, *30-*32 (E.D. Tex. 2019) (term “program code” was not a nonce word but connoted specific structure to avoid means-plus-function treatment); *WhitServe LLC v. GoDaddy.Com, Inc.*, 2014 WL

³ The specification expressly recites that “[t]he present invention can advantageously be implemented by a computer software comprising program code... when said program is run on an computer.”

5668335, *3-*4 (D. Conn. 2014) (ruling that claim limitation “software executing on said computer” was not a means-plus-function limitation); *Amdocs (Israel) Limited v. Openet Telecom, Inc.*, 2018 Markman 1699429, 2018 WL 1699429, *16-*18 (E.D. Va. 2018) (term in limitations reciting “computer code” was not a means-plus-function limitation). And Claim 7 is written in a *Beauregard* claim format. See *CLS Bank International v. Alice Corp. Pty. Ltd.*, 717 F.3d 1269, 1287 (Fed. Cir. 2013) (“named for *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995) . . . [c]laims in *Beauregard* format formally recite a tangible article of manufacture—a computer-readable medium, such as a computer disk or other data storage device—but such claims also require the device to contain a computer program for directing a computer to carry out a specified process”).

Accordingly, this term is not subject to 35 U.S.C. § 112, ¶6, but to the extent the Court deems that the presumption is overcome, this term should be construed with the same function and structure as the analogous claim term discussed in Section II.C.6, above.

10. “classifying said blocks either as corrected or uncorrected through the Forward Error Correction function” (Claims 6, 7)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	Subject to 35 U.S.C. § 112, ¶6 Indefinite for lack of structure.

This term should be given its plain and ordinary meaning. Because this term does not contain the words “means for,” there is a rebuttable presumption that section 112, paragraph 6, does not apply to that limitation. Here, the presumption is not overcome and the claim language refers to structure for the same reasons discussed in Section II.C.9, above. To the extent the Court deems that the presumption is overcome, this term should be construed with the same function and structure as the analogous claim term discussed in Section II.C.7, above.

III. U.S. Patent No. 7,508,755 (Case No. 6:20-cv-00535) Disputed Claim Terms

A. Overview of the '755 Patent

The '755 patent is generally directed to methods and devices in networking for re-routing traffic traveling in both directions from a bi-directional label switched path (LSP) to an alternate path using the same network elements. '755 patent, 1:47-49. The '755 patent summarizes certain technical problems in the field that existed at the time, nearly two decades ago. At the time of the invention, a failure in a network device or link occurs downstream of a source network device, so-called existing MPLS Fast Re-routing techniques are employed to bypass the failure. *Id.*, 1:15-17. However, while the existing MPLS Fast Re-routing techniques were effective in re-routing Multi-Protocol Label Switched (MPLS) traffic in an LSP acting independently relative to other LSPs, when LSPs were bundled together to operate in two directions, such as in bi-directional LSPs, MPLS Fast Re-routing did not perform well. This is because existing techniques attempted to re-route traffic from a forward LSP to a predetermined alternate path. However, because many times there would be no predetermined alternate path for a backward LSP in a bi-directional LSP, once a failure occurs, no traffic was allowed to flow in the backward direction. As a result, the bi-directional LSP no longer operated as a bi-directional LSP; it became a uni-directional LSP. *Id.*, 1:19-33. The existing techniques at the time were also deficient when both the forward and backward LSPs had alternate LSPs. In that instance, the existing MPLS Fast Re-routing created two separate alternate paths, one for each direction. But creating different alternate paths for the forward and backward LSPs of bi-directional LSP made it difficult to ensure the same quality of service. *Id.*, 1:34-43.

In a preferred embodiment, the '755 patent provides an originating network device operable to re-route traffic traveling in a forward direction to an alternate path in the forward direction, and to transmit a switch over message along the alternate path in the forward direction

to a network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path, where the alternate path in the forward direction and the alternate path in the backwards direction uses the same network elements. *Id.*, 1:45-56.

B. Terms with Constructions Not Contested by Defendants

Term	Construction not contested by Defendants
“means for receiving the switch over message” (Claims 8, 25)	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: receiving the switch over message</p> <p>Structure: merging network device, and equivalents thereof</p>
“[means for] receiving a switch over message along the alternative path in the forward direction” (Claim 23)	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: receiving a switch over message along the alternative path in the forward direction</p> <p>Structure: merging network device, and equivalents thereof</p> <p>Algorithm (if required): <i>see e.g.</i>, 2:7-32, 2:43-60, 3:13-36, Figs. 1, 2, 3</p>

C. Terms with Disputed Constructions

11. “originating network device” (Claims 1, 3)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“a network device of a primary LSP which is not a source network device of the same primary LSP”

This term should be given its plain and ordinary meaning. The claim language itself provides a definition of this term. Specifically, an “originating network device” is operable to re-route traffic along a bi-directional LSP in a forward direction to an alternate path...” and “transmit a switch over message...” ’755 patent, 4:12-20. The specification discloses the same. *See Id.*, 1:51-57. *Toshiba*, 681 F.3d 1369 (“Absent disclaimer or lexicography, the plain meaning of the claim

controls.”). Additionally, Defendants’ proposed construction is confusing and unhelpful as there is no requirement for “a primary LSP” anywhere in the claim language; instead the claims only require “a bi-directional LSP” and an “alternate path.” Moreover, Defendants’ proposed construction is improper for attempting to import limitations from the specification into the claim language. For example, Defendants seek to require that the term cannot be “a source network device,” support for which Defendants will likely point to the disclosure regarding the embodiment depicted by Figure 2. But Defendants’ proposed construction should be further rejected. As that particular embodiment explains: “This is so, because bi-directional Fast Re-routing uses some of the functionality of traditional MPLS Fast Re-routing which does not function at a source network device.” ’755 patent, 3:1-3. However, that is just one specific embodiment having specific parameters at the time of the invention, and the specification expressly understood that it could only describe “so-called *existing* MPLS Fast Re-routing techniques.” *Id.*, 1:15-17 (emphasis added). Further, the patentee expressly states that the described embodiments are “various exemplary embodiments of the present invention. Variations of the examples given above may be derived without departing from the spirit or scope of the present invention.” *Id.*, 3:64-67. Regardless, importing limitations from an embodiment is improper, even if it is the only embodiment. *Liebel–Flarsheim*, 358 F.3d at 906.

12. “switch over message” (Claims 1, 5, 8, 10, 13, 16, 18, 23, 25)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“a message which instructs a device to perform a switch over to the alternate path and which is not a message that indicates a fault has occurred in the network”

This term should be given its plain and ordinary meaning. Defendants’ proposed construction at best attempts to re-phrase the claim language, which is unnecessary, but also

attempts to add a negative limitation that the term “is not a message that indicates a fault has occurred in the network.” But this negative limitation does not clarify “switch over message,” and instead it amounts to an attempt of improper importation of a limitation from the specification. *Toshiba*, 681 F.3d 1369 (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”). Indeed, the word “fault” doesn’t appear anywhere in the patent, and to the extent the negative limitation can be understood, it is unclear how a switch over message would be completely exclusive of also being a message that indicates a fault in the network.

13. “means for re-routing traffic traveling along the bi-directional LSP in the backwards direction to the alternate path in the backwards direction based on the switch over message.” (Claims 8) /

“means for re-routing traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message” (Claim 23) /

“means for re-routing traffic traveling along the bi-directional LSP in a backwards direction to the same alternate path in the backwards direction based on the switch over message” (Claim 25)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: re-routing traffic traveling along the bi-directional LSP in the backwards direction to the alternate path in the backwards direction based on the switch over message (Claim 8)</p> <p>re-routing traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message (Claim 23)</p> <p>re-routing traffic traveling along the bi-directional LSP in a backwards direction to the same alternate path in the backwards direction based on the switch over message (Claim 25)</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Indefinite for failure to disclose sufficient structure.</p>

Structure: merging network device, and equivalents thereof	
Algorithm (if required): <i>see e.g.</i> , 2:7-32, 2:43-60, 3:13-36, Figs. 1, 2, 3	

The parties agree that this term is subject to Subject to 35 U.S.C. § 112, ¶6. Defendants' contention of indefinite for failure to disclose sufficient structure is erroneous at least because Defendants fail to identify any function. *Micro Chem. Inc.*, 194 F.3d at 1258. ("An error in identification of the function can improperly alter the identification of structure in the specification corresponding to that function."). The analogous terms in Claims 8, 23, and 25 are essentially identical except for a minor variation. For each of the claims, the **correct recited function is** "re-routing traffic traveling along the bi-directional LSP in the backwards direction to *the* alternate path in the backwards direction based on the switch over message" (Claim 8); re-routing traffic traveling along a bi-directional LSP in a backwards direction to *an* alternate path in the backwards direction based on the switch over message (Claim 23); and re-routing traffic traveling along the bi-directional LSP in a backwards direction to *the same* alternate path in the backwards direction based on the switch over message (Claim 25). And the **correct corresponding structure is** "merging network device, and equivalents thereof." *See e.g.*, '755 patent, 4:44-45, 6:20, 2:19-25, 2:52-60, 3:13-16. And to the extent an algorithm is required, the claim language itself sets out an algorithm, and further exemplary algorithms disclosed in the specification are recited at *Id.*, 2:7-32, 2:43-60, 3:13-36, Figs. 1, 2, 3, and equivalents thereof. For example, the specification teaches a merging network device receiving a switch over message having an alternate path that may be predetermined, and based on the switch over message, the merging network device creates an alternate path in the backward direction using the same network elements and switches backward flowing traffic to the alternate path. *Id.*

14. "means for re-routing traffic traveling along a bi-directional LSP in a

**forward direction to an alternate path in the forward direction”
(Claim 20)**

WSOU’s Proposed Construction	Defendants’ Proposed Construction
<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction</p> <p>Structure: originating network device, and equivalents thereof</p> <p>Algorithm (if required): <i>see e.g.</i>, 1:51-56, 2:7-32, 2:43-60, Figs. 1, 2, 3</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Indefinite for failure to disclose sufficient structure.</p>

The parties agree that this term is subject to Subject to 35 U.S.C. § 112, ¶6. Defendants’ contention of indefinite for failure to disclose sufficient structure is erroneous at least because Defendants fail to identify any function. *Micro Chem. Inc.*, 194 F.3d at 1258. (“An error in identification of the function can improperly alter the identification of structure in the specification corresponding to that function.”). The **correct recited function is** “re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction.” And the **correct corresponding structure is** “originating network device, and equivalents thereof.” *See e.g.*, ’755 patent, 6:1-2, 1:51-56, 2:7-32, 2:43-60. To the extent an algorithm is required, the claim language itself sets out an algorithm, and further exemplary algorithms disclosed in the specification are recited at *Id.*, 1:51-56, 2:7-32, 2:43-60, Figs. 1, 2, 3, and equivalents thereof. For example, the specification teaches an originating network device determining an alternate path or using a stored predetermined alternate path, then sending a switch over message along the alternate path to the merging network device, and then performing a switch over so that traffic flowing in the forward direction can travel along the alternate path. *Id.*

- 15. “means for transmitting a switch over message along the alternate path in the forward direction to a merging network device responsive**

for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction” (Claim 20) /

“means for transmitting a switch over message, along the alternate path in the forward direction, for re-routing traffic traveling along the bi-directional LSP in a backward direction” (Claim 25)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: transmitting a switch over message along the alternate path in the forward direction to a merging network device responsive for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction (Claim 29)</p> <p>transmitting a switch over message, along the alternate path in the forward direction, for re-routing traffic traveling along the bi-directional LSP in a backward direction” (Claim 25)</p> <p>Structure: originating network device, and equivalents thereof</p> <p>Algorithm (if required): <i>see e.g.</i>, 1:51-56, 2:7-32, 2:43-60, 3:9-36, Figs. 1, 2, 3</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Indefinite for failure to disclose sufficient structure.</p>

The parties agree that these terms are subject to Subject to 35 U.S.C. § 112, ¶6. Defendants’ contention of indefinite for lack of structure is erroneous at least because Defendants fail to identify any function. *Micro Chem. Inc.*, 194 F.3d at 1258. (“An error in identification of the function can improperly alter the identification of structure in the specification corresponding to that function.”). The analogous terms in Claims 20 and 25 are very similar and share the same corresponding structure. For each of the claims, the **correct recited function is** “transmitting a switch over message along the alternate path in the forward direction to a merging network device responsive for re-routing traffic traveling along the bi-directional LSP in a backward direction to

the alternate path in the backward direction” (Claim 20); and “transmitting a switch over message, along the alternate path in the forward direction, for re-routing traffic traveling along the bi-directional LSP in a backward direction” (Claim 25). And the **correct corresponding structure** is “originating network device, and equivalents thereof.” *See e.g.*, ’755 patent, 6:1-2, 1:51-56, 2:7-32, 2:43-60. And to the extent an algorithm is required, the claim language itself sets out an algorithm, and further exemplary algorithms disclosed in the specification are recited at *Id.*, 1:51-56, 2:7-32, 2:43-60, 3:9-36, Figs. 1, 2, 3, and equivalents thereof. For example, the specification teaches an originating network device determining an alternate path or using a stored predetermined alternate path and sending a switch over message along the alternate path to the merging network device. And based on the switch over message, the merging network device creates an alternate path in the backward direction using the same network elements and switches backward flowing traffic to the alternate path. *Id.*

16. “means for means for [sic] receiving traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction” (Claim 23)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Function: receiving traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction</p> <p>Structure: merging network device, and equivalents thereof</p> <p>Algorithm (if required): <i>see e.g.</i>, 2:7-32, 2:43-60, 3:13-36, Figs. 1, 2, 3</p>	<p>Subject to 35 U.S.C. § 112, ¶6</p> <p>Indefinite for failure to disclose sufficient structure.</p>

The parties agree that this term is subject to Subject to 35 U.S.C. § 112, ¶6. Defendants’ contention of indefinite for lack of structure is erroneous at least because Defendants fail to identify any function. *Micro Chem. Inc.*, 194 F.3d at 1258. (“An error in identification of the function can

improperly alter the identification of structure in the specification corresponding to that function.”). The **correct recited function** is “receiving traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction.” And the **correct corresponding structure** is “merging network device, and equivalents thereof.” See e.g., ’755 patent, 6:20, 2:7-32, 2:43-60, 3:13-36. And to the extent an algorithm is required,⁴ the claim language itself sets out an algorithm, and further exemplary algorithms disclosed in the specification are recited at *Id.*, 2:7-32, 2:43-60, 3:13-36, Figs. 1, 2, 3, and equivalents thereof. For example, the specification teaches a merging network device receiving a switch over message in the forward direction via an alternate path after a failure is detected. *Id.*

IV. U.S. Patent No. 8,417,112 (Case No. 6:20-cv-00540) Disputed Claim Terms

A. Overview of the ’112 Patent

The ’112 patent is generally directed to improving accuracy in monitoring in an optical network to determine when to switch, or re-route traffic. ’112 patent, Abstract, 1:6-10. The ’112 patent summarizes certain technical problems in the field that existed at the time, nearly two decades ago. At the time of the invention, the standardized optical digital transmission systems that were used generally specified that the protection time (the time it takes to re-route client traffic after detection of a failure) must be 50 milliseconds (ms) or less; that the number of network elements (Nodes) in the ring is 16 or fewer; and that the total fiber distance around the ring is 1200 kilometers (km) or less. However, factors existed which caused the detection and initiation of the switching time to exceed 50 ms. For example, the size of the network and the length of optical fiber traversed are factors which could cause the time to exceed 50 ms. *Id.*, 1:38-46. Exemplary factors that could induce switching were a loss of signal (LOS) or bit error rate (BER) that was too

⁴ The Federal Circuit has held that for functions such as “receiving,” no algorithm is required. *In re Katz Interactive Call Proc. Patent*, 639 F.3d 1303, 1316 (Fed. Cir. 2011).

high. Systems at the time did not distinguish between a BER that exceeds the threshold due to a true line failure or a BER transient that momentarily causes the BER value to exceed the BER threshold. *Id.*, 1:47-59. Without knowledge of the actual maximum switch time to an alternate transmission path, it was difficult to guarantee the initiation of a switch within 50 ms. *Id.*, 1:60-67.

In a preferred embodiment, the '112 patent a switching method is provided having improved accuracy in monitoring a network to determine when to switch. The method collects and stores a plurality of bit error rate (BER) values. The BER values are analyzed using a BER hysteresis algorithm to check BER degradation. Thereafter, the method switches a transmission port when the degradation exceeds a predetermined BER threshold level for a predetermined time period. In another embodiment, a feature which transmits a switch polling signal for a predetermined duration is used with the switching method. *Id.*, 2:1-15.

B. Terms with Disputed Constructions

17. “determining whether said collected BER values worsen over time” (Claims 1, 11)

WSOU’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“determining whether said collected BER values worsen over time by comparing one or more of said recent ones of said collected BER values with said other collected BER values”

This term should be given its plain and ordinary meaning. The claim language itself provides a definition of this term, which is evidenced by Defendants reciting the claim language verbatim in their proposed construction. Defendants’ additional recitation in their proposal is confusing, as it simply states that some value(s) should be compared with other value(s), but that concept is already included in the term itself. Moreover, Defendants’ proposed construction is unnecessarily duplicative, more verbose, and deficient. Specifically, it is unclear how merely

“comparing one or more of said recent of said collected BER values with said other collected BER values” helps in “determining whether said collected BER values worsen over time.” For example, it is unclear how comparing merely one recent value can show “worsen over time.” Defendants’ proposed construction should be rejected. *Toshiba*, 681 F.3d 1369 (“Absent disclaimer or lexicography, the plain meaning of the claim controls.”).

Dated: February 5, 2021

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CERTIFICATE OF SERVICE

A true and correct copy of the foregoing instrument was served or delivered electronically via U.S. District Court [LIVE]- Document Filing System, to all counsel of record, on this the 30th day of February 5, 2021.

/s/ James L. Etheridge
James L. Etheridge